

Attachments

- A. Flow Frequency Memorandum**
- B. Wastewater Treatment Diagrams**
- C. Site Visit Report**
- D. USGS Topographic Map**
- E. Ambient Water Quality Information**
 - **2010 Impaired Waters Report, L25R-01-BAC**
 - **Big Otter River TMDL Addendum (p.1)**
 - **Roanoke River Basin Water Quality Management Plan (excerpt)**
- F. Wasteload and Limit Calculations**
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 - **Wasteload Allocation Spreadsheet**
 - **STATS Program Results**
 - **Basis for Ammonia Limitations**

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination
Thaxton Elementary School STP - #VA0020869

TO: Bill Woods, WCRO

FROM: Paul E. Herman, P.E., WOAP *Paul*

DATE: December 19, 1997

COPIES: Ron Gregory, Charles Martin, File

DEQ-WCRO

DEC 22 1997

RECEIVED

KBS

The Thaxton Elementary School STP discharges to an unnamed tributary of the Wolf Creek near Bedford, VA. Flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The values at the discharge point were determined by inspection of the USGS Bedford Quadrangle topographical map which shows the discharge point is on a drainage ditch beside a railroad. The flow frequencies for drainage ditches are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and the harmonic mean.

The discharge flows down the ditch to an unnamed tributary of Wolf Creek. This confluence lies just below a pond which is fed by intermittent streams. During periods of low flow, the pond will retain as storage any runoff that enters. During this time, the flow in the stream below the pond will be zero as well.

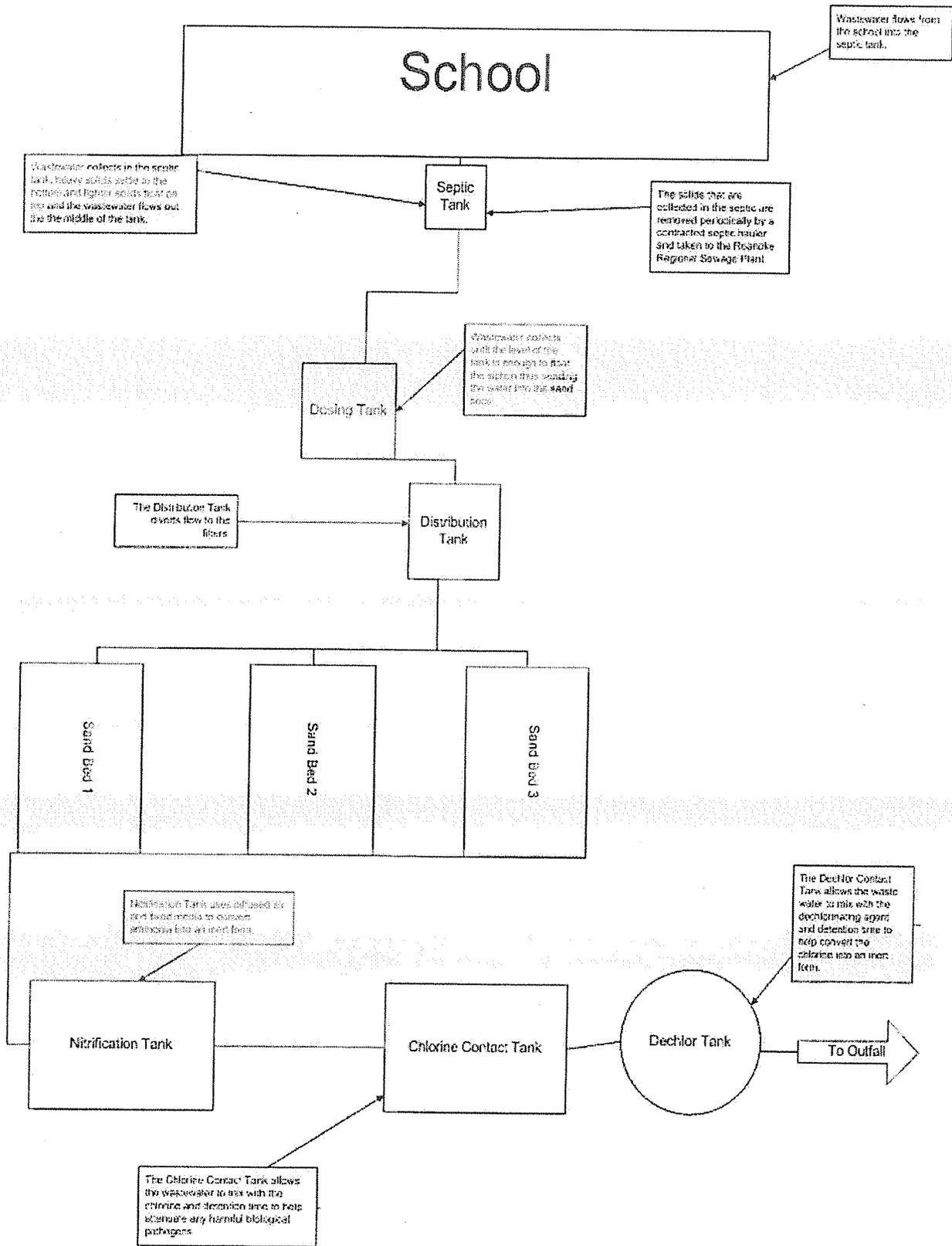
If you have any questions concerning this analysis, please let me know.

Attachment A

Flow Frequency Memorandum

Attachment B

Wastewater Treatment Diagrams



Attachment C
Site Visit Report

M E M O R A N D U M
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
WEST CENTRAL REGIONAL OFFICE
WATER DIVISION

3019 Peters Creek Road

Roanoke, Virginia 24019-2738

SUBJECT: Site visit for VPDES Permit Reissuance - VA0020869
Thaxton Elementary School STP

To: Permit files VPDES permit VA0020869

From: Kevin A. Harlow, Environmental Engineer Sr.

Date: February 8, 2008

On Monday, February 8, 2008, the writer performed a site visit at the Thaxton Elementary School STP. Also present during the visit was Jennifer Mitchell, an operator for the Bedford County PSA.

The treatment facility consists of a grease trap, two septic tanks, dosing tank with dual alternating siphons, distribution box, three biological sand filter beds operating in parallel followed by a nitrification unit, chlorine contact tank, and tablet dechlorination.

No actual influent flow rates are available. DMR flow reporting is estimated based on the number of students. Chad Williams noted that the septic tanks and grease traps are pumped as needed. The grease traps and septic tanks were not opened for inspection during this visit. The sand filters and chlorination facilities were all fenced and the gate locked.

As noted above there was no discharge from the facility during our visit so no measurements were recorded from the visit. The discharge is through a PVC pipe to an unnamed tributary to Wolf Creek. The "receiving stream" is essentially a railway ditch.

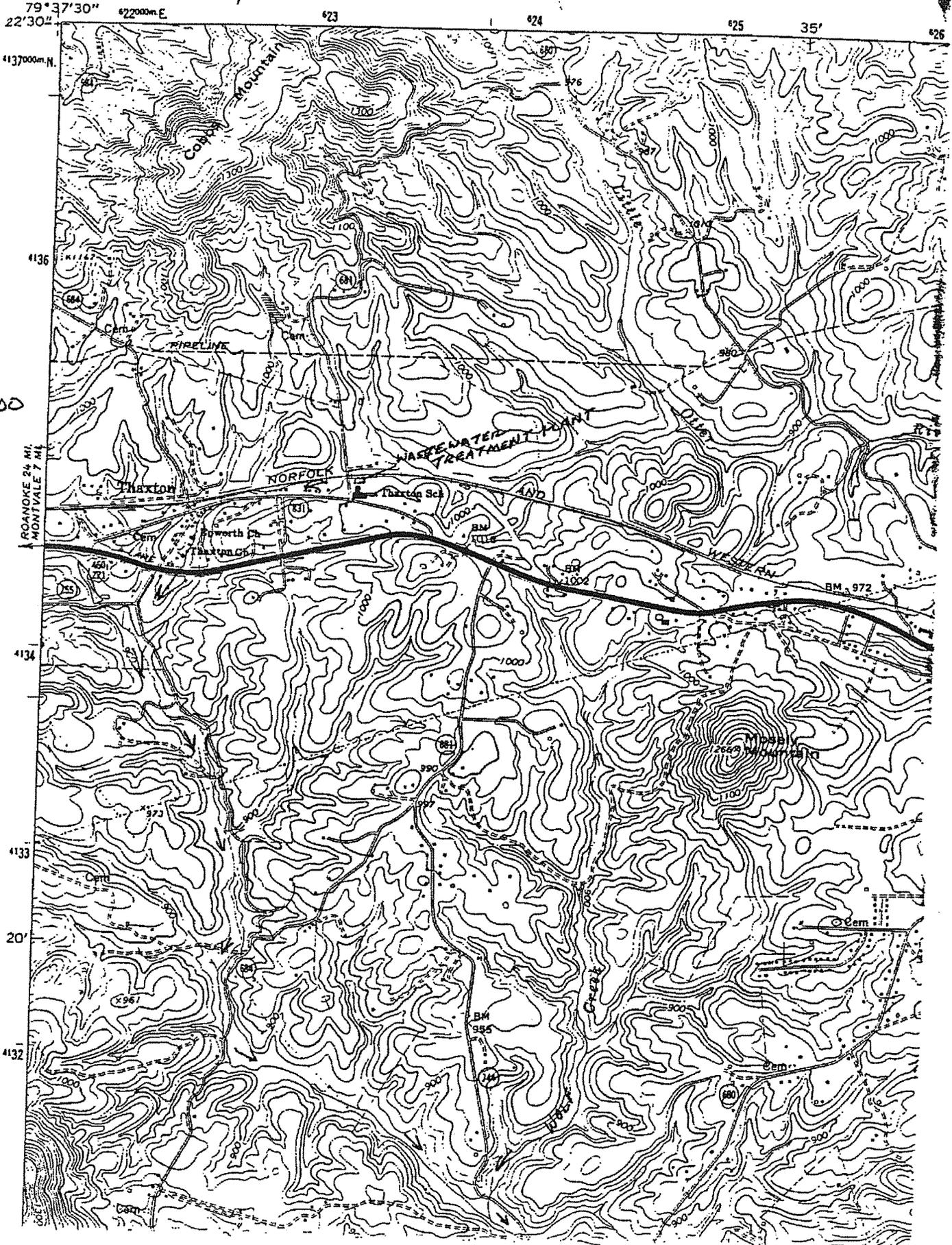
Test equipment is stored on the truck used by the operator to visit each facility daily. The Operations and Maintenance manual for the facility is maintained by the PSA. The operator was not asked about maintenance records during the visit.

Attachment D

USGS Topographic Map

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BEACON QUADRANGLE



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SCALE
: 24 000

ROADS 24 MI.
MONTVALE 7 MI.

Attachment E

Ambient Water Quality Information

- **2010 305(b)/303(d) Integrated Report (Excerpt)**
- **Cub Creek Bacteria TMDL (excerpt)**
- **Roanoke River Basin Water Quality Management Plan (Excerpt)**



2010 Impaired Waters

Categories 4 and 5 by DCR Watershed*

Roanoke and Yadkin River Basins

Fact Sheet prepared for DCR Watershed: L21*

Cause Group Code: **L21R-01-BAC** **Goose Creek**

Location: Goose Creek from the mouth of Rocky Branch downstream to the confluence of Stony Fork Creek.

City / County: Bedford Co.

Use(s): Recreation

Cause(s) /
VA Category: Escherichia coli/ 4A

The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387] and SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries are nested within the Staunton River TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

The 1999 Federal Consent Decree includes station 4AGSE022.55 as an Attachment B station for fecal coliform bacteria. The station was not 2002 303(d) listed as the 2002 exceedance rate is 8 percent where two of 23 analyses exceed the former 1000 cfu/100 ml instantaneous criterion (2002). The 2004 fecal coliform (FC) bacteria assessment results in 303(d) Listing finding nonsupport based on the 400 cfu/100 ml instantaneous criterion in 2004.

4AGSE025.64- There are no additional data beyond the 2008 assessment. Escherichia coli (E.coli) exceed the 235 cfu/100 ml criterion in three of nine samples ranging from 250 to 700 cfu/100 ml in both 2008 and 2010.

4AGSE022.55- There are no additional data beyond the 2004 IR. The 2004 Integrated Report (IR) records FC exceeds the 400 cfu/100 ml instantaneous criterion in two of 18 samples. The exceeding values are 800 and 3100 cfu/100 ml. 2008 IR finds one of three FC samples exceeding the instantaneous criterion.

Assessment Unit / Water Name / Description	Cause Category / Name	Nested	Cycle First Listed	TMDL Schedule or EPA Approval	Size
VAW-L21R_GSE01A00 / Goose Creek / Goose Creek mainstem from the Rocky Branch mouth on downstream to the confluence of Stony Fork Creek.	4A Escherichia coli	Y	2008	6/22/2006	7.26

Goose Creek	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
DCR Watershed: L21*			7.26

Escherichia coli - Total Impaired Size by Water Type:

Sources:

- | | | | |
|---|--|----------------------------|-------------------------------|
| Livestock (Grazing or Feeding Operations) | On-site Treatment Systems (Septic Systems and Similar Decentralized Systems) | Unspecified Domestic Waste | Wildlife Other than Waterfowl |
|---|--|----------------------------|-------------------------------|

*Header Information: Location, City/County, Cause/VA Category and Narratives; describe the entire extent of the Impairment. Sizes presented are for Assessment Units (AUs) lying within the DCR Watershed boundary noted above.



2010 Impaired Waters

Categories 4 and 5 by DCR Watershed*

Roanoke and Yadkin River Basins

Fact Sheet prepared for DCR Watershed: L21*

Cause Group Code: L21R-02-BAC Wolf Creek

Location: Wolf Creek from its headwaters downstream to the Wolf Creek confluence on Goose Creek

City / County: Bedford Co.

Use(s): Recreation

Cause(s) /

VA Category: Escherichia coli/ 4A

The Recreation Use is impaired for 6.82 miles in this 2008 initial 303(d) Listing due to exceedances for escherichia coli (E.coli) bacteria. The Staunton River Bacteria Total Maximum Daily Load (TMDL) is U.S. EPA approved 6/22/2006 [Fed IDs 24386 / 23315 / 23316 / 24387]. SWCB approved 6/17/2007. Goose Creek [Fed ID 24552] and its tributaries including Wolf Creek are nested within the Staunton River Bacteria TMDL Watershed. Allocation scenario development is for the entire drainage to provide pollutant reductions for all watersheds contributing to the bacteria impairment. The entirety of the approved TMDL and allocations can be viewed at <http://www.deq.virginia.gov>.

4AWLF000.09- (Rt. 691 Bridge at Joppa Mill) Both 2008 and 2010 data reveal E.coli exceeds the 235 cfu/100 ml criterion in three of nine samples. E.coli exceedances range from 320 to 1400 cfu/100 ml. There are no additional data beyond the 2008 Integrated Report (IR).

Assessment Unit / Water Name / Description	Cause Category / Name	Nested	Cycle First Listed	TMDL Schedule or EPA Approval	Size
VAW-L21R_WLF01A08 / Wolf Creek / Wolf Creek from the Fiddler Creek mouth downstream to the Wolf Creek confluence with Goose Creek.	4A Escherichia coli	Y	2008	6/22/2006	4.04
VAW-L21R_WLF02A08 / Wolf Creek / Wolf Creek headwaters downstream to the Fiddler Creek confluence on Wolf Creek.	4A Escherichia coli	Y	2008	6/22/2006	2.78
Wolf Creek					
DCR Watershed: L21*					
Escherichia coli - Total Impaired Size by Water Type:					6.82
			Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)

Sources:

Livestock (Grazing or Feeding Operations)

On-site Treatment Systems (Septic Systems and Similar Decentralized Systems)

Unspecified Domestic Waste

Wildlife Other than Waterfowl

*Header Information: Location, City/County, Cause/VA Category and Narratives; describe the entire extent of the Impairment. Sizes presented are for Assessment Units (AUs) lying within the DCR Watershed boundary noted above.

**Bacteria TMDLs
for the Cub Creek, Turnip Creek,
Buffalo Creek, Buffalo Creek (UT),
and Staunton River Watersheds,
Virginia**

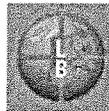
Submitted by

Virginia Department of Environmental Quality

Prepared by



and



THE Louis Berger Group, INC.

2300 N Street, NW
Washington, DC 20037

April 2006

3.5 Fecal Coliform Source Assessment

This section focuses on characterizing the sources that potentially contribute to the fecal coliform loading in the Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River watershed. These sources include permitted facilities, sanitary sewer systems and septic systems, livestock, land application of manure and biosolids, wildlife, and pets. Chapter 4 includes a detailed presentation of how these sources are incorporated and represented in the model.

3.5.1 Permitted Facilities

Data obtained from the DEQ’s South Central Regional Office indicate that there are 34 individually permitted facilities located in the Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River watershed, not including the Falling River and Big Otter Watersheds. The permit number, design flow, and status for each permits are presented in **Table 3-12**. The locations of the individual permits are presented in **Figure 3-14** (latitudes and longitudes were not consistently available for the general permits and they could not be mapped). Only municipal facilities are potentially significant sources of fecal coliform, but the flow from all permitted dischargers will be considered in the hydrology calibration.

Table 3-12: Active Permitted Discharges in the Cub Creek, Turnip Creek, Buffalo Creek, Buffalo Creek (UT), and Staunton River Watershed

Permit Number	Facility Name	Facility Type	Design Flow (gpd) ¹	Receiving Waterbody	Status
VA0020451	Altavista Town – Wastewater Treatment Plant	Municipal	3600000	Staunton River	Active
VA0087106	American Electric Power – Leesville Hydro Plant	Industrial	1465000	Staunton River	Active
VA0087238	Bedford County – PSA New Montvale Elementary School	Municipal	20000	Goose Creek, South Fork	Active
VA0063738	Bedford County – Staunton River High School	Municipal	25600	Shoulder Run, UT	Active
VA0020869	Bedford County – Thaxton Elementary School	Municipal	3500	Wolf Creek, UT	Active
VA0089052	Blue Ridge Wood Preserving Inc	Industrial	0	Hunting Creek, UT	Active
VA0054577	BP Products North America Inc	Industrial	0	Goose Creek, South Fork	Active

5.9 Staunton River TMDL

5.9.1 Staunton River Waste Load Allocation

There are 29 facilities in the Staunton River watershed permitted to discharge bacteria (see Chapter 4). For this TMDL, the wasteload allocation for permitted facilities is to maintain discharge at the design flow limits and bacteria concentrations at their permitted levels of 126 cfu/100mL. Table 5-15 shows the loading from the permitted point source dischargers in the watershed.

Table 5-15: Staunton River Waste load Allocation for *E. coli*

Point Source	Existing Load (cfu/day)	Allocated Load (cfu/day)	Allocated Load (cfu/year)	Percent Reduction
VA0020451	1.72E+10	1.72E+10	6.28E+12	0%
VA0087106	6.99E+09	6.99E+09	2.55E+12	0%
VA0022241	3.72E+08	3.72E+08	1.36E+11	0%
VA0001678	1.56E+10	1.56E+10	5.69E+12	0%
VA0073733	1.67E+08	1.67E+08	6.10E+10	0%
VA0001538	6.32E+09	6.32E+09	2.31E+12	0%
VA0083402	4.16E+08	4.16E+08	1.52E+11	0%
VA0083399	9.16E+08	9.16E+08	3.34E+11	0%
VA0084433	3.82E+08	3.82E+08	1.39E+11	0%
VA0022748	3.43E+07	3.43E+07	1.25E+10	0%
VA0024058	1.19E+09	1.19E+09	4.34E+11	0%
VA0083097	8.28E+09	8.28E+09	3.02E+12	0%
VA0050822	3.85E+08	3.85E+08	1.41E+11	0%
VA0087238	9.54E+07	9.54E+07	3.48E+10	0%
VA0063738	1.22E+08	1.22E+08	4.45E+10	0%
VA0020869	1.67E+07	1.67E+07	6.10E+09	0%
VA0089052	4.77E+02	4.77E+02	1.74E+05	0%
VA0054577	4.77E+02	4.77E+02	1.74E+05	0%
VA0060909	7.15E+07	7.15E+07	2.61E+10	0%
VA0051721	8.11E+07	8.11E+07	2.96E+10	0%
VA0023515	1.00E+08	1.00E+08	3.65E+10	0%
VA0001490	3.10E+08	3.10E+08	1.13E+11	0%
VA0026051	2.71E+09	2.71E+09	9.89E+11	0%
VA0051446	2.23E+09	2.23E+09	8.14E+11	0%
VA0074870	2.29E+07	2.29E+07	8.36E+09	0%
VAG404017	4.77E+06	4.77E+06	1.74E+09	0%
VAG404081	2.15E+06	2.15E+06	7.85E+08	0%
VAG404106	2.15E+06	2.15E+06	7.85E+08	0%
VAG404143	2.86E+06	2.86E+06	1.04E+09	0%
Total	6.40E+10	6.40E+10	2.34E+13	0%

FINAL REGULATIONS

For information concerning Final Regulations, see Information Page.

Symbol Key

Roman type indicates existing text of regulations. *Italic type* indicates new text. Language which has been stricken indicates text to be deleted. [Bracketed language] indicates a change from the proposed text of the regulation.

TITLE 9. ENVIRONMENT

STATE WATER CONTROL BOARD

Title of Regulation: 9 VAC 25-720. Water Quality Management Planning Regulation (amending 9 VAC 25-720-80).

Statutory Authority: § 62.1-44.15 of the Code of Virginia; Clean Water Act (33 USC § 1313 (e)); 40 CFR Part 130.

Effective Date: December 28, 2005.

Agency Contact: Jason R. Hill, Department of Environmental Quality, 3019 Peters Creek Road, Roanoke, VA 24019,

9 VAC 25-720-80. Roanoke River Basin.

telephone (540) 562-6724, FAX (540) 562-6729, or e-mail jrhill@deq.virginia.gov.

Summary:

The amendment to the Roanoke River Basin section (9 VAC 25-720-80 B) establishes a standard format for data presentation and updates the data and information contained in this portion of the regulation to provide consistency with the current VPDES permits.

Summary of Public Comments and Agency's Response: A summary of comments made by the public and the agency's response may be obtained from the promulgating agency or viewed at the office of the Registrar of Regulations.

EDITOR'S NOTE: 9 VAC 25-720-80 A is not amended; therefore, the text is not set out. 9 VAC 25-720-80 B is stricken in its entirety and is not set out. The new text for 9 VAC 25-720-80 B is set out below.

B. Non-TMDL waste load allocations.

Water Body	Permit No.	Facility Name	Outfall No.	Receiving Stream	River Mile	Parameter Description	WLA	Units WLA
VAW-L04R	VA0072389	Oak Ridge Mobile Home Park	001	Falling Creek UT	0.32	BOD ₅	0.85	KG/D
VAW-L04R	VA0025020	Roanoke City Regional Water Pollution Control Plant				TKN, APR-SEP	318	KG/D
						TKN, OCT-MAR	636	KG/D
			001	Roanoke River	201.81	BOD ₅	1173	KG/D
						TKN, APR-SEP	416	KG/D
						TKN, OCT-MAR	832	KG/D
			001	Roanoke River	201.81	BOD ₅	1173	KG/D
						TKN, APR-SEP	469	KG/D
						TKN, OCT-MAR	939	KG/D
VAW-L04R	VA0077895	Roanoke Moose Lodge	001	Mason Creek	7.79	BOD ₅ , JUN-SEP	0.24	KG/D
						TKN, JUN-SEP	0.09	KG/D
VAW-L07R	VA0020842	Bedford County School Board- Stewartville Elementary School	001	Nat Branch, UT	0.59	BOD ₅	0.5	KG/D
VAW-L14R	VA0029254	Ferrum Water and Sewage Auth. - Ferrum Sewage Treatment Plant	001	Storey Creek	9.78	BOD ₅	14.2	KG/D
VAW-L14R	VA0085952	Rocky Mount Town Sewage Treatment Plant	001	Pigg River	52	BOD ₅	133	KG/D
VAW-L14R	VA0076015	Ronile Incorporated	001	Pigg River	57.24	BOD ₅	14.8	KG/D
VAW-L21R	VA0063738	Bedford County School Board - Staunton River High School	001	Shoulder Run, UT	0.95	BOD ₅	1.8	KG/D
VAW-L21R	VA0020869	Bedford County School Board - Thaxton Elementary School	001	Wolf Creek, UT	0.35	BOD ₅	0.31	KG/D
VAW-L22R	VA0023515	Blue Ridge Regional Jail Auth. - Moneta Adult Detention Facility STP	001	Mattox Creek, UT	3.76	BOD ₅	1.66	KG/D
VAW-L25R	VA0020851	Bedford County School Board - Otter River Elementary School	001	Big Otter River, UT	1.15	BOD ₅	0.4	KG/D

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VAW-L26R	VA0022390	Bedford City - Sewage Treatment Plant	001	Little Otter River	14.36	BOD ₅	52.8	KG/D
VAW-L26R	VA0020818	Bedford County School Board - Body Camp Elementary	001	Wells Creek, UT	2.22	BOD ₅	0.4	KG/D
VAW-L27R	VA0020826	Bedford County School Board - New London Academy	001	Buffalo Creek, UT	0.67	BOD ₅	0.39	KG/D
VAC-L29R	VA0031194	Briarwood Village Mobile Home Park STP	001	Smith Branch, UT	2.82	BOD ₅	1.3	KG/D
VAC-L35R	VA0023965	Campbell Co Util & Serv Auth. - Rustburg	001	Mollys Creek	17.81	BOD ₅	8.13	KG/D
VAC-L39R	VA0084433	Drakes Branch WWTP	001	Twitty's Creek	6.04	BOD ₅	6.4	KG/D
VAC-L39R	VA0024058	Keysville WWTP	001	Ash Camp Creek	7.63	CBOD ₅ , MAY-NOV	32.1	KG/D
						TKN, MAY-NOV	7.57	KG/D
VAC-L39R	VA0050822	Westpoint Stevens Inc Drakes Branch	001	Twittys Creek	7.22	BOD ₅	6.31	KG/D
VAW-L43R	VA0022985	Stuart Town - Sewage Treatment Plant	001	South Mayo River	30.78	BOD ₅	63.5	KG/D
VAW-L54R	VA0069345	Henry Co Public Service Auth. - Lower Smith River STP	001	Smith River	19.4	BOD ₅	257	KG/D
VAW-L54R	VA0025305	Martinsville City Sewage Treatment Plant	001	Smith River	22.69	BOD ₅	681	KG/D
VAC-L60R	VA0060593	Danville City - Northside	001	Dan River	53.32	BOD ₅	1907	KG/D
						TKN, JUN-OCT	1817	KG/D
[VAC-L66R	VA0020524	Town of Chatham STP	001	Cherrystone Creek	2.49	CBOD ₅ TKN	64.8 38.9	KG/D KG/D]
VAC-L75L	VA0020168	Clarksville WWTP	001	Blue Creek/John H. Kerr Reservoir	0.1	BOD ₅	59.5	KG/D
VAC-L77R	VA0076881	Chase City Regional WWTP	001	Little Bluestone Creek	13.67	CBOD ₅ , MAY-NOV	29.5	KG/D
						TKN, MAY-NOV	9.5	KG/D
VAC-L78R	VA0026247	Boydton WWTP	001	Coleman Creek	3.79	CBOD ₅ , MAY-NOV	17.7	KG/D
						TKN, MAY-NOV	4.1	KG/D
VAC-L79R	VA0069337	South Hill WWTP	001	Flat Creek	8.95	CBOD ₅ , APR-NOV	60.6	KG/D

VA.R. Doc. No. R04-123; Filed November 7, 2005, 2:14 p.m.

Attachment F

Wasteload and Limit Calculations

- **Wasteload Allocation Spreadsheet**
- **STATS Program Results**
- **Basis for Ammonia Limits**

Due Date	pH Min	pH Max	90th %ile (EST)
10-Feb-2001	6.9	7.6	7.5
10-Mar-2001	6.2	7.3	7.1
10-Apr-2001	6.7	8.1	7.9
10-May-2001	7	8.1	7.9
10-Jun-2001	7.2	8.6	8.4
10-Jul-2001	8	8.1	8.1
10-Oct-2001	6.4	8.5	8.2
10-Nov-2001	6.6	8.1	7.9
10-Dec-2001	7.6	8.4	8.3
10-Jan-2002	7.2	8.4	8.2
10-Feb-2002	7.6	8.4	8.3
10-Mar-2002	7.2	8.4	8.2
10-Apr-2002	7.5	8.5	8.3
10-May-2002	6.4	8.5	8.2
10-Jun-2002	6.8	8	7.8
10-Jul-2002	7	7.5	7.4
10-Oct-2002	6.8	9	8.6
10-Nov-2002	7.3	8.2	8.1
10-Dec-2002	7.1	8.1	7.9
10-Jan-2003	7.3	8.1	8.0
10-Feb-2003	7.5	8	7.9
10-Mar-2003	7	8	7.8
10-Apr-2003	6.9	7.8	7.7
10-May-2003	7.3	7.9	7.8
10-Jun-2003	7.0	7.8	7.7
10-Jul-2003	7	8	7.8
10-Oct-2003	7.9	8.8	8.7
10-Nov-2003	7	7.7	7.6
10-Dec-2003	7	7.8	7.7
10-Jan-2004	7	7.5	7.4
10-Feb-2004	7	8	7.8
10-Mar-2004	7.3	8	7.9
10-Apr-2004	7	8.1	7.9
10-May-2004	7	8	7.8
10-Jun-2004	7	8	7.8
10-Jul-2004	7	7.5	7.4
10-Aug-2004	7.5	7.5	7.5
10-Oct-2004	6.5	8	7.8
10-Nov-2004	7.5	8	7.9
10-Dec-2004	6.5	7.3	7.2
10-Jan-2005	7.5	8	7.9
10-Feb-2005	7	8	7.8
10-Mar-2005	7	7.4	7.3
10-Apr-2005	7	7.5	7.4
10-May-2005	7.5	8.4	8.3
10-Jun-2005	7	8	7.8
10-Jul-2005	7.5	7.5	7.5
10-Aug-2005	8	8	8.0
10-Oct-2005	7.5	8	7.9
10-Nov-2005	7.5	8	7.9
10-Dec-2005	7.5	8	7.9
10-Jan-2006	7	8	7.8
10-Feb-2006	7.5	8	7.9
10-Mar-2006	7.5	8	7.9
10-Apr-2006	7.5	8	7.9
10-May-2006	7.5	8	7.9
10-Jun-2006	7.5	8	7.9
10-Jul-2006	8	8	8.0
10-Oct-2006	7.5	8	7.9
10-Nov-2006	7.5	8.2	8.1
10-Dec-2006	7.3	8.9	8.6
10-Jan-2007	7.4	8.3	8.2
10-Feb-2007	7.5	8.5	8.3
10-Mar-2007	7.5	8.2	8.1

Due Date	pH Min	pH Max	90th %ile (EST)
10-Apr-2007	7.6	8.6	8.4
10-May-2007	7.4	8.6	8.4
10-Jun-2007	7.4	8.3	8.2
10-Jul-2007	7.9	8.4	8.3
10-Oct-2007	7.1	8.8	8.5
10-Nov-2007	7.3	8.6	8.4
10-Dec-2007	7.2	8.2	8.0
10-Jan-2008	7	8	7.8
10-Feb-2008	7	8.2	8.0
10-Mar-2008	7.1	8.2	8.0
10-Apr-2008	7.4	7.9	7.8
10-May-2008	7.3	8.2	8.1
10-Jun-2008	7	7.8	7.7
10-Oct-2008	7	8.1	7.9
10-Nov-2008	7.2	8	7.9
10-Dec-2008	7.3	7.9	7.8
10-Jan-2009	7.4	8.4	8.2
10-Feb-2009	7.3	8	7.9
10-Mar-2009	7.2	8.2	8.0
10-Apr-2009	7.3	8.1	8.0
10-May-2009	7.1	8.0	7.9
10-Jun-2009	7.5	8.2	8.1
10-Jul-2009	7.4	8.1	8.0
10-Oct-2009	7.3	8.6	8.4
10-Nov-2009	7.0	8.4	8.2
10-Dec-2009	7.5	8.4	8.3
10-Jan-2010	7.3	8.2	8.1
10-Feb-2010	7.3	8.7	8.5
10-Mar-2010	6.8	8	7.8
10-Apr-2010	7.0	8.6	8.3
10-May-2010	7.2	8	7.9
10-Jun-2010	7	7.8	7.7
10-Jul-2010	7	8	7.8
10-Sep-2010	7.2	8	7.9
10-Oct-2010	7.0	8.2	8.0
10-Nov-2010	7.0	7.5	7.4
10-Dec-2010	7.2	7.8	7.7
10-Jan-2011	7.3	8.2	8.1
10-Feb-2011	7.0	8.5	8.3
10-Mar-2011	6.9	8.2	8.0
10-Apr-2011	6.9	8.3	8.1
10-May-2011	6.9	8.1	7.9
10-Jun-2011	7.5	8.2	8.1
10-Jul-2011	7.8	8.4	8.3
10-Sep-2011	7.9	8.2	8.2
10-Oct-2011	7.3	8.2	8.1
10-Nov-2011	7.4	8.4	8.2
10-Dec-2011	7.0	8.3	8.1
10-Jan-2012	7.4	8.3	8.2
10-Feb-2012	7.7	8.6	8.5
10-Mar-2012	7.1	8.6	8.4
10-Apr-2012	7.8	8.7	8.6
10-May-2012	7.2	7.2	7.2
10-Jun-2012	7.4	8.4	8.2
10-Jul-2012	7.7	8.4	8.3
10-Sep-2012	8.3	8.7	8.6
10-Oct-2012	7.5	8.7	8.5
10-Nov-2012	7.0	8.6	8.3
10-Dec-2012	8.2	9.4	9.2
10-Jan-2013	7.3	8.7	8.5
10-Feb-2013	6.7	8.4	8.1
10-Mar-2013	7.7	8.4	8.3
10-Apr-2013	6.8	8.3	8.1
10-May-2013	7.0	8.3	8.1
Average			8.0

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Thaxton E.S. STP Permit No.: VA0020869
 Receiving Stream: UT to Wolf Creek Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information	Stream Flows	Mixing Information	Effluent Information
Mean Hardness (as CaCO3) =	100 mg/L	Annual - 1Q10 Mix = 100 %	Mean Hardness (as CaCO3) = 100 mg/L
90% Temperature (Annual) =	20 deg C	- 7Q10 Mix = 100 %	90% Temp (Annual) = 20 deg C
90% Temperature (Wet season) =	16 deg C	- 30Q10 Mix = 100 %	90% Temp (Wet season) = 12 deg C
90% Maximum pH =	8 SU	Wet Season - 1Q10 Mix = 100 %	90% Maximum pH = 8 SU
10% Maximum pH =	7 SU	- 30Q10 Mix = 100 %	10% Maximum pH = 6.8 SU
Tier Designation (1 or 2) =	2		Discharge Flow = 0.0035 MGD
Public Water Supply (PWS) Y/N? =	Y		
Trout Present Y/N? =	N		
Early Life Stages Present Y/N? =	N		

Parameter (log/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0			6.7E+02	9.9E+02			6.7E+01	9.9E+01			6.7E+01	9.9E+01			6.7E+01	9.9E+01
Acrolein	0			6.1E+00	9.3E+00			6.1E-01	9.3E-01			6.1E-01	9.3E-01			6.1E-01	9.3E-01
Acrylonitrile ^c	0			5.1E-01	2.5E+00			5.1E-02	2.5E-01			5.1E-02	2.5E-01			5.1E-02	2.5E-01
Aldrin ^c	0			3.0E+00	5.0E-04			3.0E+00	5.0E-04			7.5E-01	5.0E-05			7.5E-01	5.0E-05
Ammonia-N (mg/l) (Yearly)	0			8.41E+00	1.71E+00			8.41E+00	1.71E+00			2.10E+00	4.27E-01			2.10E+00	4.27E-01
Ammonia-N (mg/l) (High Flow)	0			8.41E+00	2.86E+00			8.41E+00	2.86E+00			2.10E+00	7.16E-01			2.10E+00	7.16E-01
Anthracene	0				4.0E+04				4.0E+04				4.0E+03				4.0E+03
Antimony	0			5.6E+00	6.4E+02			5.6E-01	6.4E+01				6.4E+01				6.4E+01
Arsenic	0			3.4E+02	1.5E+02			3.4E+02	1.5E+02			8.5E+01	3.8E+01			8.5E+01	3.8E+01
Barium	0				2.0E+03				2.0E+03				2.0E+02				2.0E+02
Benzene ^c	0			2.2E+01	5.1E+02			2.2E+01	5.1E+02				5.1E+01				5.1E+01
Benzidine ^c	0			8.6E-04	2.0E-03			8.6E-05	2.0E-04				2.0E-04				2.0E-04
Benzo (a) anthracene ^c	0			3.8E-02	1.8E-01			3.8E-03	1.8E-02				1.8E-02				1.8E-02
Benzo (b) fluoranthene ^c	0			3.8E-02	1.8E-01			3.8E-03	1.8E-02				1.8E-02				1.8E-02
Benzo (k) fluoranthene ^c	0			3.8E-02	1.8E-01			3.8E-03	1.8E-02				1.8E-02				1.8E-02
Benzo (a) pyrene ^c	0			3.8E-02	1.8E-01			3.8E-03	1.8E-02				1.8E-02				1.8E-02
Bis(2-Chloroethyl) Ether ^c	0			3.0E-01	5.3E+00			3.0E-02	5.3E-01				5.3E-01				5.3E-01
Bis(2-Chloroisopropyl) Ether	0			1.4E+03	6.5E+04			1.4E+03	6.5E+04				6.5E+03				6.5E+03
Bis(2-Ethylhexyl) Phthalate ^c	0			1.2E+01	2.2E+01			1.2E+01	2.2E+01				2.2E+00				2.2E+00
Bromoform ^c	0			4.3E+01	1.4E+03			4.3E+01	1.4E+03				1.4E+02				1.4E+02
Butylbenzylphthalate	0			1.5E+03	1.9E+03			1.5E+03	1.9E+03				1.9E+02				1.9E+02
Cadmium	0			3.9E+00	1.1E+00			3.9E+00	1.1E+00			9.8E-01	2.8E-01			9.8E-01	2.8E-01
Carbon Tetrachloride ^c	0				1.6E+01				1.6E+01				1.6E+00				1.6E+00
Chlordane ^c	0			2.4E+00	4.3E-03			2.4E+00	4.3E-03			6.0E-01	1.1E-03			6.0E-01	1.1E-03
Chloride	0			8.6E+05	2.3E+05			8.6E+05	2.3E+05			2.2E+05	5.8E+04			2.2E+05	5.8E+04
TRC	0			1.9E+01	1.1E+01			1.9E+01	1.1E+01			4.8E+00	2.8E+00			4.8E+00	2.8E+00
Chlorobenzene	0				1.3E+02				1.3E+02				1.3E+01				1.3E+01

Parameter (ug/l unless noted)	Background		Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
	Conc.		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorobromomethane ^g	0				4.0E+00	1.3E+02			4.0E-01	1.3E+01			4.0E-01	1.3E+01			4.0E-01	1.3E+01			4.0E-01	1.3E+01
Chloroform	0				3.4E+02	1.1E+04			3.4E+01	1.1E+03			3.4E+01	1.1E+03			3.4E+01	1.1E+03			3.4E+01	1.1E+03
2-Chloronaphthalene	0				1.0E+03	1.6E+03			1.0E+02	1.6E+02			1.0E+02	1.6E+02			1.0E+02	1.6E+02			1.0E+02	1.6E+02
2-Chlorophenol	0				8.1E+01	1.5E+02			8.1E+00	1.5E+01			8.1E+00	1.5E+01			8.1E+00	1.5E+01			8.1E+00	1.5E+01
Chlorpyrifos	0		8.3E-02	4.1E-02			8.3E-02	4.1E-02			2.1E-02	1.0E-02			2.1E-02	1.0E-02			2.1E-02	1.0E-02		
Chromium III	0		5.7E+02	7.4E+01			5.7E+02	7.4E+01			1.4E+02	1.9E+01			1.4E+02	1.9E+01			1.4E+02	1.9E+01		
Chromium VI	0		1.6E+01	1.1E+01			1.6E+01	1.1E+01			4.0E+00	2.8E+00			4.0E+00	2.8E+00			4.0E+00	2.8E+00		
Chromium, Total	0				1.0E+02				1.0E+01				1.0E+01				1.0E+01				1.0E+01	
Chrysene ^c	0				3.8E-03	1.8E-02			3.8E-04	1.8E-03			3.8E-04	1.8E-03			3.8E-04	1.8E-03			3.8E-04	1.8E-03
Copper	0		1.3E+01	9.0E+00			1.3E+01	9.0E+00			3.4E+00	2.2E+00			3.4E+00	2.2E+00			3.4E+00	2.2E+00		
Cyanide, Free	0		2.2E+01	5.2E+00			2.2E+01	5.2E+00			5.5E+00	1.3E+00			5.5E+00	1.3E+00			5.5E+00	1.3E+00		
DDD ^c	0				3.1E-03	3.1E-03			3.1E-03	3.1E-03			3.1E-03	3.1E-03			3.1E-03	3.1E-03			3.1E-03	3.1E-03
DDE ^c	0				2.2E-03	2.2E-03			2.2E-03	2.2E-03			2.2E-03	2.2E-03			2.2E-03	2.2E-03			2.2E-03	2.2E-03
DDT ^c	0		1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.1E+00	1.0E-03	2.2E-03	2.2E-03	2.8E-01	2.5E-04	2.2E-04	2.2E-04	2.8E-01	2.5E-04	2.2E-04	2.2E-04	2.8E-01	2.5E-04	2.2E-04	2.2E-04
Demeton	0				1.0E-01				1.0E-01				2.5E-02				2.5E-02				2.5E-02	
Diazinon	0		1.7E-01	1.7E-01			1.7E-01	1.7E-01			4.3E-02	4.3E-02			4.3E-02	4.3E-02			4.3E-02	4.3E-02		
Dibenz(a,h)anthracene ^c	0				3.8E-02	1.8E-01			3.8E-03	1.8E-02			3.8E-03	1.8E-02			3.8E-03	1.8E-02			3.8E-03	1.8E-02
1,2-Dichlorobenzene	0				4.2E+02	1.3E+03			4.2E+01	1.3E+02			4.2E+01	1.3E+02			4.2E+01	1.3E+02			4.2E+01	1.3E+02
1,3-Dichlorobenzene	0				3.2E+02	9.6E+02			3.2E+01	9.6E+01			3.2E+01	9.6E+01			3.2E+01	9.6E+01			3.2E+01	9.6E+01
1,4-Dichlorobenzene	0				6.3E+01	1.9E+02			6.3E+00	1.9E+01			6.3E+00	1.9E+01			6.3E+00	1.9E+01			6.3E+00	1.9E+01
3,3-Dichlorobenzidine ^g	0				2.1E-01	2.8E-01			2.1E-01	2.8E-01			2.1E-01	2.8E-01			2.1E-01	2.8E-01			2.1E-01	2.8E-01
Dichlorobromomethane ^c	0				5.5E+00	1.7E+02			5.5E+00	1.7E+01			5.5E-01	1.7E+01			5.5E-01	1.7E+01			5.5E-01	1.7E+01
1,2-Dichloroethane ^c	0				3.8E+00	3.7E+02			3.8E+00	3.7E+01			3.8E-01	3.7E+01			3.8E-01	3.7E+01			3.8E-01	3.7E+01
1,1-Dichloroethylene	0				3.3E+02	7.1E+03			3.3E+01	7.1E+02			3.3E+01	7.1E+02			3.3E+01	7.1E+02			3.3E+01	7.1E+02
1,2-Trans-dichloroethylene	0				1.4E+02	1.0E+04			1.4E+01	1.0E+03			1.4E+01	1.0E+03			1.4E+01	1.0E+03			1.4E+01	1.0E+03
2,4-Dichlorophenol	0				7.7E+01	2.9E+02			7.7E+00	2.9E+01			7.7E+00	2.9E+01			7.7E+00	2.9E+01			7.7E+00	2.9E+01
2,4-Dichlorophenoxy acetic acid (2,4-D)	0				1.0E+02				1.0E+01				1.0E+01				1.0E+01				1.0E+01	
1,2-Dichloropropane ^g	0				5.0E+00	1.5E+02			5.0E+00	1.5E+01			5.0E-01	1.5E+01			5.0E-01	1.5E+01			5.0E-01	1.5E+01
1,3-Dichloropropene ^c	0				3.4E+00	2.1E+02			3.4E+00	2.1E+01			3.4E-01	2.1E+01			3.4E-01	2.1E+01			3.4E-01	2.1E+01
Dieldrin ^c	0		2.4E-01	5.6E-02	5.2E-04	5.4E-04	2.4E-01	5.6E-02	5.2E-04	5.4E-04	6.0E-02	1.4E-02	5.2E-05	5.4E-05	6.0E-02	1.4E-02	5.2E-05	5.4E-05	6.0E-02	1.4E-02	5.2E-05	5.4E-05
Diethyl Phthalate	0				1.7E+04	4.4E+04			1.7E+03	4.4E+03			1.7E+03	4.4E+03			1.7E+03	4.4E+03			1.7E+03	4.4E+03
2,4-Dimethylphenol	0				3.8E+02	8.5E+02			3.8E+01	8.5E+01			3.8E+01	8.5E+01			3.8E+01	8.5E+01			3.8E+01	8.5E+01
Dimethyl Phthalate	0				2.7E+05	1.1E+06			2.7E+04	1.1E+05			2.7E+04	1.1E+05			2.7E+04	1.1E+05			2.7E+04	1.1E+05
Di-n-Butyl Phthalate	0				2.0E+03	4.5E+03			2.0E+02	4.5E+02			2.0E+02	4.5E+02			2.0E+02	4.5E+02			2.0E+02	4.5E+02
2,4-Dinitrophenol	0				6.9E+01	5.3E+03			6.9E+01	5.3E+02			6.9E+00	5.3E+02			6.9E+00	5.3E+02			6.9E+00	5.3E+02
2-Methyl-4,6-Dinitrophenol	0				1.3E+01	2.8E+02			1.3E+01	2.8E+01			1.3E+00	2.8E+01			1.3E+00	2.8E+01			1.3E+00	2.8E+01
2,4-Dinitrotoluene ^c	0				1.1E+00	3.4E+01			1.1E+00	3.4E+00			1.1E-01	3.4E+00			1.1E-01	3.4E+00			1.1E-01	3.4E+00
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0				5.0E-08	5.1E-08			5.0E-09	5.1E-09			5.0E-09	5.1E-09			5.0E-09	5.1E-09			5.0E-09	5.1E-09
1,2-Diphenylhydrazine ^g	0				3.6E-01	2.0E+00			3.6E-01	2.0E+00			3.6E-02	2.0E-01			3.6E-02	2.0E-01			3.6E-02	2.0E-01
Alpha-Endosulfan	0		2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	5.5E-02	1.4E-02	6.2E+00	8.9E+00	5.5E-02	1.4E-02	6.2E+00	8.9E+00	5.5E-02	1.4E-02	6.2E+00	8.9E+00
Beta-Endosulfan	0		2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	5.5E-02	1.4E-02	6.2E+00	8.9E+00	5.5E-02	1.4E-02	6.2E+00	8.9E+00	5.5E-02	1.4E-02	6.2E+00	8.9E+00
Alpha + Beta Endosulfan	0		2.2E-01	5.6E-02			2.2E-01	5.6E-02			5.5E-02	1.4E-02			5.5E-02	1.4E-02			5.5E-02	1.4E-02		
Endosulfan Sulfate	0				6.2E+01	8.9E+01			6.2E+01	8.9E+01			6.2E+00	8.9E+00			6.2E+00	8.9E+00			6.2E+00	8.9E+00
Endrin	0		8.6E-02	3.6E-02	5.9E-02	6.0E-02	8.6E-02	3.6E-02	5.9E-02	6.0E-02	2.2E-02	9.0E-03	5.9E-03	6.0E-03	2.2E-02	9.0E-03	5.9E-03	6.0E-03	2.2E-02	9.0E-03	5.9E-03	6.0E-03
Endrin Aldehyde	0				2.9E-01	3.0E-01			2.9E-01	3.0E-01			2.9E-02	3.0E-02			2.9E-02	3.0E-02			2.9E-02	3.0E-02

Parameter (ug/l unless noted)	Background			Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	5.3E+01	2.1E+02	--	--	5.3E+01	2.1E+02	--	--	5.3E+01	2.1E+02	
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	1.3E+01	1.4E+01	--	--	1.3E+01	1.4E+01	--	--	1.3E+01	1.4E+01	
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	1.1E+02	5.3E+02	--	--	1.1E+02	5.3E+02	--	--	1.1E+02	5.3E+02	
Foaming Agents	0	--	--	5.0E+02	--	--	--	5.0E+01	--	--	--	5.0E+01	--	--	--	5.0E+01	--	
Gulonic	0	--	1.0E-02	--	--	--	2.5E-03	--	--	--	2.5E-03	--	--	--	2.5E-03	--	--	
Heptachlor ^c	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	5.2E-01	3.8E-03	7.9E-05	7.9E-05	1.3E-01	9.5E-04	7.9E-05	7.9E-05	1.3E-01	9.5E-04	7.9E-05	7.9E-05	
Heptachlor Epoxide ^d	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	5.2E-01	3.8E-03	3.9E-05	3.9E-05	1.3E-01	9.5E-04	3.9E-05	3.9E-05	1.3E-01	9.5E-04	3.9E-05	3.9E-05	
Hexachlorobenzene ^d	0	--	--	2.8E-03	2.9E-03	--	--	2.8E-04	2.9E-04	--	--	2.8E-04	2.9E-04	--	--	2.8E-04	2.9E-04	
Hexachlorobutadiene ^d	0	--	--	4.4E+00	1.8E+02	--	--	4.4E-01	1.8E+01	--	--	4.4E-01	1.8E+01	--	--	4.4E-01	1.8E+01	
Hexachlorocyclohexane	0	--	--	2.6E-02	4.9E-02	--	--	2.6E-03	4.9E-03	--	--	2.6E-03	4.9E-03	--	--	2.6E-03	4.9E-03	
Alpha-BHC ^c	0	--	--	9.1E-02	1.7E-01	--	--	9.1E-03	1.7E-02	--	--	9.1E-03	1.7E-02	--	--	9.1E-03	1.7E-02	
Beta-BHC ^c	0	--	--	9.8E-01	1.8E+00	9.5E-01	--	9.8E-02	1.8E-01	2.4E-01	--	9.8E-02	1.8E-01	2.4E-01	--	9.8E-02	1.8E-01	
Hexachlorocyclohexane	0	--	--	4.0E+01	1.1E+03	--	--	4.0E+00	1.1E+02	--	--	4.0E+00	1.1E+02	--	--	4.0E+00	1.1E+02	
Gamma-BHC ^c (Lindane)	0	--	--	1.4E+01	3.3E+01	--	--	1.4E+00	3.3E+00	--	--	1.4E+00	3.3E+00	--	--	1.4E+00	3.3E+00	
Hexachlorocyclopentadiene	0	--	2.0E+00	--	--	--	2.0E+00	--	--	--	5.0E-01	--	--	--	5.0E-01	--	--	
Hexachloroethane ^d	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	
Hydrogen Sulfide	0	--	--	3.0E+02	--	--	--	3.0E+01	--	--	--	3.0E+01	--	--	--	3.0E+01	--	
Indeno (1,2,3-cd) pyrene ^c	0	1.2E+02	1.4E+01	1.5E+01	--	1.2E+02	1.4E+01	1.5E+01	--	3.0E+01	3.4E+00	1.5E+00	--	3.0E+01	3.4E+00	1.5E+00	--	
Iron	0	--	1.0E-01	--	--	--	1.0E-01	--	--	--	2.5E-02	--	--	--	2.5E-02	--	--	
Isothorone ^d	0	--	--	3.5E+02	9.6E+03	--	--	3.5E+01	9.6E+02	--	--	3.5E+01	9.6E+02	--	--	3.5E+01	9.6E+02	
Kepona	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	
Lead	0	1.2E+02	1.4E+01	1.5E+01	--	1.2E+02	1.4E+01	1.5E+01	--	3.0E+01	3.4E+00	1.5E+00	--	3.0E+01	3.4E+00	1.5E+00	--	
Malathion	0	--	--	5.0E+01	--	--	5.0E+01	--	--	--	5.0E+00	--	--	--	5.0E+00	--	--	
Manganese	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	3.5E-01	1.9E-01	--	--	3.5E-01	1.9E-01	--	--	
Mercury	0	--	--	4.7E+01	1.5E+03	--	--	4.7E+00	1.5E+02	--	--	4.7E+00	1.5E+02	--	--	4.7E+00	1.5E+02	
Methyl Bromide	0	--	--	4.6E+01	5.9E+03	--	--	4.6E+00	5.9E+02	--	--	4.6E+00	5.9E+02	--	--	4.6E+00	5.9E+02	
Methylene Chloride ^d	0	--	3.0E-02	1.0E+02	--	--	3.0E-02	1.0E+02	--	--	7.5E-03	1.0E+01	--	--	7.5E-03	1.0E+01	--	
Methoxychlor	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	
Mirex	0	1.8E+02	2.0E+01	6.1E+02	4.6E+03	1.8E+02	2.0E+01	6.1E+02	4.6E+03	4.6E+01	5.1E+00	6.1E+01	4.6E+02	4.6E+01	5.1E+00	6.1E+01	4.6E+02	
Nitrate (as N)	0	--	1.0E+04	--	--	--	1.0E+04	--	--	--	1.0E+03	--	--	--	1.0E+03	--	--	
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	1.7E+00	6.9E+01	--	--	1.7E+00	6.9E+01	--	--	1.7E+00	6.9E+01	
N-Nitrosodimethylamine ^d	0	--	--	6.9E-03	3.0E+01	--	--	6.9E-04	3.0E+00	--	--	6.9E-04	3.0E+00	--	--	6.9E-04	3.0E+00	
N-Nitrosophenylamine ^d	0	--	--	3.3E+01	6.0E+01	--	--	3.3E+00	6.0E+00	--	--	3.3E+00	6.0E+00	--	--	3.3E+00	6.0E+00	
N-Nitrosodi-n-propylamine ^d	0	--	--	5.0E-02	5.1E+00	--	--	5.0E-03	5.1E-01	--	--	5.0E-03	5.1E-01	--	--	5.0E-03	5.1E-01	
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	--	--	7.0E+00	1.7E+00	--	--	7.0E+00	1.7E+00	--	--	
Parathion	0	6.5E-02	1.3E-02	--	--	6.5E-02	1.3E-02	--	--	1.6E-02	3.3E-03	--	--	1.6E-02	3.3E-03	--	--	
PCB Total ^f	0	--	1.4E-02	6.4E-04	6.4E-04	--	--	3.5E-03	6.4E-05	--	--	3.5E-03	6.4E-05	--	--	3.5E-03	6.4E-05	
Pentachlorophenol ^c	0	7.1E+00	5.5E+00	2.7E+00	3.0E+01	7.1E+00	5.5E+00	2.7E+00	3.0E+00	1.8E+00	1.4E+00	2.7E-01	3.0E+00	1.8E+00	1.4E+00	2.7E-01	3.0E+00	
Phenol	0	--	1.0E+04	8.6E+05	--	--	1.0E+04	8.6E+05	--	--	1.0E+03	8.6E+04	--	--	1.0E+03	8.6E+04	--	
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	8.3E+01	4.0E+02	--	--	8.3E+01	4.0E+02	--	--	8.3E+01	4.0E+02	
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	1.5E+01	--	--	--	1.5E+00	--	--	--	1.5E+00	--	--	
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	--	--	4.0E+00	--	--	--	4.0E-01	--	--	--	4.0E-01	--	--	
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	5.0E+00	--	--	--	5.0E-01	--	--	--	5.0E-01	--	--	
Uranium (ug/l)	0	--	--	3.0E+01	--	--	3.0E+01	--	--	--	3.0E+00	--	--	--	3.0E+00	--	--	

Parameter (ug/l, unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	2.0E+01	5.0E+00	1.7E+01	4.2E+02	5.0E+00	1.3E+00	1.7E+01	4.2E+02	5.0E+00	1.3E+00	1.7E+01	4.2E+02	5.0E+00	1.3E+00	1.7E+01	4.2E+02
Silver	0	3.4E+00	--	--	--	3.4E+00	--	--	--	8.6E-01	--	--	--	8.6E-01	--	--	--	8.6E-01	--	--	--
Sulfate	0	--	--	2.5E+05	--	--	--	2.5E+04	--	--	--	2.5E+04	--	--	--	2.5E+04	--	--	--	2.5E+04	--
1,1,2,2-Tetrachloroethane ^g	0	--	--	1.7E+00	4.0E+01	--	--	1.7E-01	4.0E+00	--	--	1.7E-01	4.0E+00	--	--	1.7E-01	4.0E+00	--	--	1.7E-01	4.0E+00
Tetrachloroethylene ^g	0	--	--	6.9E+00	3.3E+01	--	--	6.9E-01	3.3E+00	--	--	6.9E-01	3.3E+00	--	--	6.9E-01	3.3E+00	--	--	6.9E-01	3.3E+00
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	2.4E-02	4.7E-02	--	--	2.4E-02	4.7E-02	--	--	2.4E-02	4.7E-02	--	--	2.4E-02	4.7E-02
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	5.1E+01	6.0E+02	--	--	5.1E+01	6.0E+02	--	--	5.1E+01	6.0E+02	--	--	5.1E+01	6.0E+02
Total dissolved solids	0	--	--	5.0E+05	--	--	--	5.0E+04	--	--	--	5.0E+04	--	--	--	5.0E+04	--	--	--	5.0E+04	--
Toxaphene ^c	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	7.3E-01	2.0E-04	2.8E-04	2.8E-04	1.8E-01	5.0E-05	2.8E-04	2.8E-04	1.8E-01	5.0E-05	2.8E-04	2.8E-04	1.8E-01	5.0E-05	2.8E-04	2.8E-04
Tributyltin	0	4.6E-01	7.2E-02	--	--	4.6E-01	7.2E-02	--	--	1.2E-01	1.8E-02	--	--	1.2E-01	1.8E-02	--	--	1.2E-01	1.8E-02	--	--
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	3.5E+00	7.0E+00	--	--	3.5E+00	7.0E+00	--	--	3.5E+00	7.0E+00	--	--	3.5E+00	7.0E+00
1,1,2-Trichloroethane ^g	0	--	--	5.9E+00	1.6E+02	--	--	5.9E-01	1.6E+01	--	--	5.9E-01	1.6E+01	--	--	5.9E-01	1.6E+01	--	--	5.9E-01	1.6E+01
Trichloroethylene ^c	0	--	--	2.5E+01	3.0E+02	--	--	2.5E+00	3.0E+01	--	--	2.5E+00	3.0E+01	--	--	2.5E+00	3.0E+01	--	--	2.5E+00	3.0E+01
2,4,6-Trichlorophenoxy propionic acid (Silvex)	0	--	--	1.4E+01	2.4E+01	--	--	1.4E+00	2.4E+00	--	--	1.4E+00	2.4E+00	--	--	1.4E+00	2.4E+00	--	--	1.4E+00	2.4E+00
Vinyl Chloride ^g	0	--	--	5.0E+01	--	--	--	5.0E+00	--	--	--	5.0E+00	--	--	--	5.0E+00	--	--	--	5.0E+00	--
Zinc	0	1.2E+02	1.2E+02	7.4E+03	2.6E+04	1.2E+02	1.2E+02	7.4E+03	2.6E+04	2.9E+01	3.0E+01	7.4E+03	2.6E+03	2.9E+01	3.0E+01	7.4E+03	2.6E+03	2.9E+01	3.0E+01	7.4E+03	2.6E+03

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "c" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
Antidegrad. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 3Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	5.6E-01
Arsenic	1.0E+00
Barium	2.0E+02
Cadmium	1.7E-01
Chromium III	1.1E+01
Chromium VI	1.6E+00
Copper	1.3E+00
Iron	3.0E+01
Lead	1.5E+00
Manganese	5.0E+00
Mercury	1.2E-01
Nickel	3.0E+00
Selenium	7.5E-01
Silver	3.4E-01
Zinc	1.2E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

5/29/2013 3:55:46 PM

Facility = Thaxton E.S. - VA0020869

Chemical = Ammonia

Chronic averaging period = 30

WLAa = 8.41

WLAc =

Q.L. = 0.2

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 9

Variance = 29.16

C.V. = 0.6

97th percentile daily values = 21.9007

97th percentile 4 day average = 14.9741

97th percentile 30 day average = 10.8544

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 8.41

Average Weekly limit = 8.41

Average Monthly Limit = 8.41

The data are:

5/29/2013 3:57:33 PM

Facility = Thaxton E.S. - VA0020869

Chemical = TRC

Chronic averaging period = 4

WLAa = 19

WLAc =

Q.L. = 100

samples/mo. = 30

samples/wk. = 8

Summary of Statistics:

observations = 1

Expected Value = 4000

Variance = 5760000

C.V. = 0.6

97th percentile daily values = 9733.67

97th percentile 4 day average = 6655.16

97th percentile 30 day average = 4824.21

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 19

Average Weekly limit = 11.3335966321422

Average Monthly Limit = 9.4168021134859

The data are:

4000

THIS IS A WORK IN PROGRESS UPDATING FOR WQS CHANGES jkw 1/11/01
Calculation of Waste Load Allocations using OWRM guidance memo 00-2011
This spreadsheet uses the Fractional Complete Mix calculated by the 3-95 Mixing Model

WLA Analysis For: Thaxton Elementary School STP - VA0020869

Date: 03/21/03

Stream: UT to Wolf Creek		Effluent Information		Hardness		Mix Hardness	
Mean Hardness =	30 mg/L (Default)	Mean Hardness =	30 mg/L	acute:	30	acute:	30
Stream NH3 =	0 mg/L	Effluent NH3 =	0 mg/L	chronic:	30	chronic:	30
90% Temperature =	24.7 C	90% Temperature =	20 C	7Q10 Ratio:	1	* WLAa	
90% pH =	8.3 SU	90% pH =	8.2 SU	1Q10 Ratio:	1	Coefficient =	0.99
Fractional 7Q10 =	0	Original Flow =	0.004 MGD			Acute IWC =	1
Fractional 1Q10 =	0					chronic IWC =	1
Harmonic mean =	0			Harmonic ratio:	1		
30Q5 Flow =	0			30Q5 ratio:	1		
Annual Average =	0			Annual Average ratio:	1		
R(iver),L(ake) or S(torm):	R						
Frout Present?	N						
Public Water Supply:	Y						

Parameter and Form Ammonia (mg/l as N) Chlorine	Human Health Criteria		Aquatic Protection		Freshwater Criteria	
	PWS Criteria	Other Waters Criteria	Acute Criteria	Chronic Criteria	Acute Criteria	Chronic Criteria
	None	None	3.610	0.823	19	11
	None	None	3.61	11		
	None	None	19.00			
			0.82			
			11.00			
			NA			
			NA			
			NA			

Parameter and Form Ammonia (mg/l as N) Chlorine	Human Health Criteria		Aquatic Protection		Freshwater Criteria	
	PWS Criteria	Other Waters Criteria	Acute Criteria	Chronic Criteria	Acute Criteria	Chronic Criteria
	None	None	3.610	0.823	19	11
	None	None	3.61	11		
	None	None	19.00			
			0.82			
			11.00			
			NA			
			NA			
			NA			

Parameter and Form Ammonia (mg/l as N) Chlorine	Human Health Criteria		Aquatic Protection		Freshwater Criteria	
	PWS Criteria	Other Waters Criteria	Acute Criteria	Chronic Criteria	Acute Criteria	Chronic Criteria
	None	None	3.610	0.823	19	11
	None	None	3.61	11		
	None	None	19.00			
			0.82			
			11.00			
			NA			
			NA			
			NA			

Parameter and Form Ammonia (mg/l as N) Chlorine	Human Health Criteria		Aquatic Protection		Freshwater Criteria	
	PWS Criteria	Other Waters Criteria	Acute Criteria	Chronic Criteria	Acute Criteria	Chronic Criteria
	None	None	3.610	0.823	19	11
	None	None	3.61	11		
	None	None	19.00			
			0.82			
			11.00			
			NA			
			NA			
			NA			

3/31/2003 2:56:50 PM

Facility = Thaxton E.S. STP
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 3.61
WLAc =
Q.L. = .2
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average = 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 3.61
Average Weekly limit = 3.61
Average Monthly Limit = 3.61

The data are: